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JP 100149112 A US 5509048 A JP 200050360 A

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(54) Abstract Title
A mobile telephone with projection means

(57) A mobile telephone 1 has a screen 3 which can be stored within or alongside the telephone and unfolded for use. There is an image projector 2 that can project images and/or text received by the telephone onto the screen 3 or any other surface e.g. wall or door, so that the magnified image can be seen. Said projection means is described as being any suitable light source which can generate enough light to project an image, and as well as being in black and white there is the possibility of projecting coloured images.

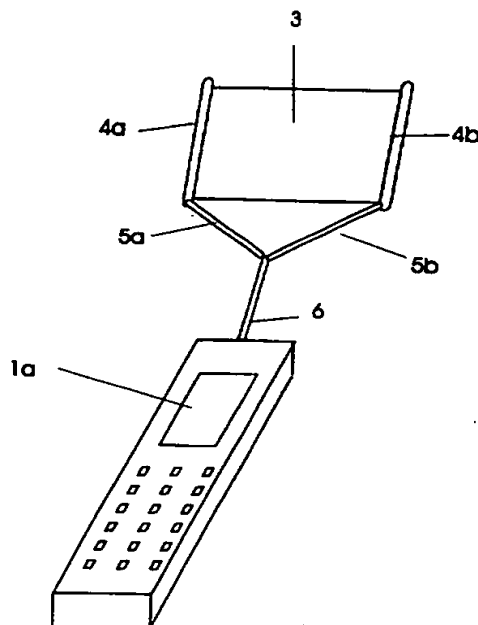


Fig. 2

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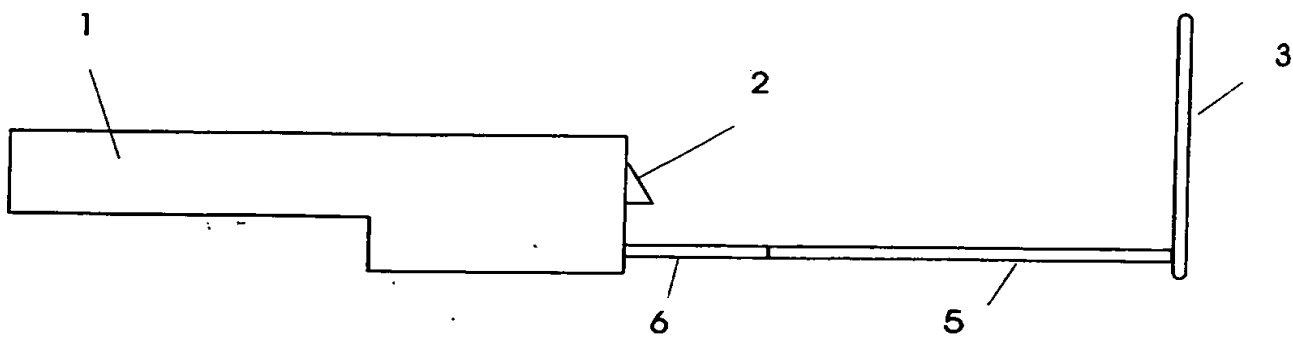


Fig. 1

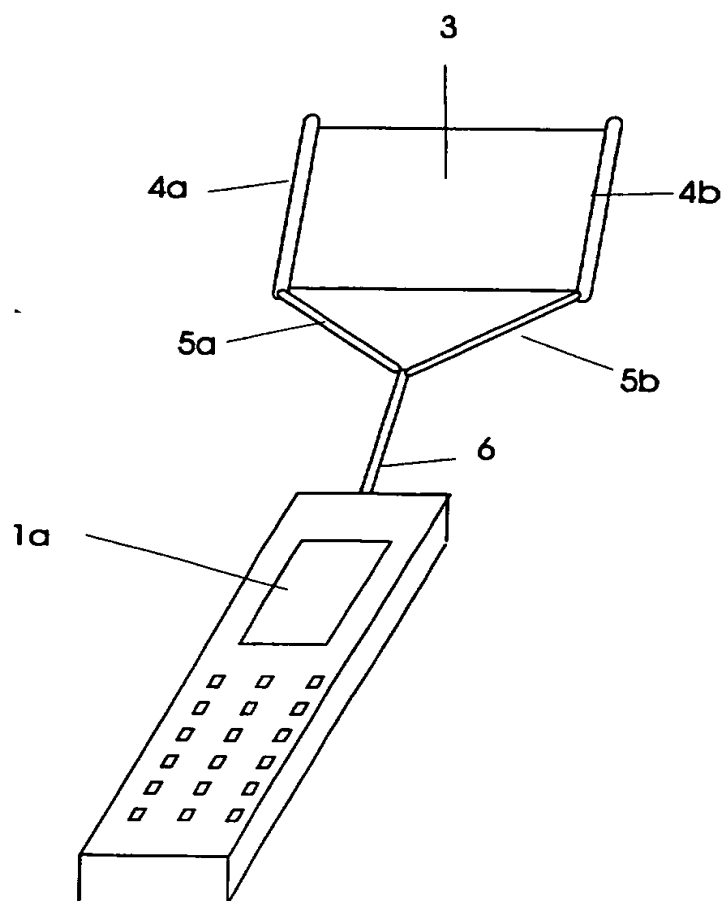


Fig. 2

Improved Mobile Telephone

The present invention relates to an improved mobile telephone.

5 Mobile telephones have a display screen on which numbers dialled, messages and telephone numbers are displayed and stored in the memory of the mobile telephone and recovered.

10 With the advent of WAP there will be more and more text and images to be displayed on the screen of a mobile telephone such as images and text viewed from the World Wide Web and messages received by email. The display on the mobile telephone is of a limited size and, in order that the mobile telephone is kept compact, this size cannot be increased. This means that it can be difficult to read images and text and there is a limit to the number of words and images which can be displayed and that can still be
15 read.

In order to overcome this problem it has been proposed to have a magnifying lens which magnifies the image so making it easy to read, this lens can be at an angle to the mobile phone and associated with a mirror so a user can look down and see the
20 magnified image, but this can involve complex arrangements.

I have devised an improved arrangement for viewing images and text produced by a mobile telephone.

25 According to the invention there is provided a mobile telephone incorporating a projection means which is able to project images and/or text produced by the mobile telephone onto a screen or any surface e.g. a wall or door.

30 In existing mobile telephones there is a display means, which is a small screen forming part of and contained within the mobile telephone and is normally a liquid

crystal display. In the present invention there can optionally be a conventional display screen within the mobile telephone as well as a projection means, which is able to project images and/or text onto a screen or other surface.

- 5 The projection means can use any suitable light source which can generate enough light to project an image e.g. light emitting diodes etc. As messages on conventional mobile telephones are in black and white, a white light source can be used, although the facility can be incorporated to project coloured images.
- 10 The projection means can be controlled by the mobile telephone circuitry so that the image or message received can be projected by the projection means.

- As the image is projected, the image is magnified, with the greater the distance from the mobile telephone to the screen, the larger the magnification, although for normal
- 15 use a magnification of two to five times is adequate. The size and focus of the image and text can be varied via controls on the mobile telephone also.

- The screen can be separate from the mobile telephone, but in a preferred embodiment of the invention the screen is associated with the mobile telephone and can be opened
- 20 when required. For example the screen can be folded and stored within a common casing with the mobile telephone or alongside the mobile telephone so that the mobile telephone is still compact. In use the screen is unfolded and the image and/or text is projected from the mobile telephone onto the screen or surface.

- 25 The invention provides a convenient and easy to operate way of viewing images and text from a mobile telephone which does not involve complex arrangements.

The invention is described in the accompanying drawings in which: -

- 30 Fig. 1 is a side view of an embodiment of the invention and

Fig. 2 is a perspective view.

- Referring to the drawings, a mobile telephone (1) has a conventional keyboard and screen (1a). Incorporated in one end is a projector (2) which is connected to the
- 5 circuits of the mobile telephone (1). There is a screen (3), which can be rolled up on one or both of the supports (4a) and (4b) so as to form a compact roll. The struts (5a) and (5b) are hinged at (6) so that, when the screen is rolled up, the struts come together. The strut (6) connects to the struts (5a) and (5b) as shown.
- 10 The struts (5a), (5b) and (6) can be telescoped to reduce their length so that the distance from the projector (2) can be varied in use. When not in use the struts can be closed so as to form the shortest length and the struts and screen inserted into a cavity in the mobile telephone or along side.
- 15 In use, when a message is received or an image and/or text is to be displayed on the screen (3) the struts and screen are withdrawn from where they are stored and opened up to the configuration of figure 2. The image and text is then projected from the projector (2) onto the screen (3) or a surface e.g. a wall or door, where it can be viewed. If the image is only to be viewed on the display screen (1a) the screen (3) is
- 20 kept folded up but can be opened if needed.
- By adjusting the length of the struts (5a), (5b) and (6) the distance from the projector (2) can be varied and so the size of the image and/or text on the screen varied.

Claims

1. A mobile telephone that incorporates a projection means which is able to project images and/or text produced by the mobile telephone onto a screen or any surface.
5
2. A mobile telephone as claimed in claim 1 in which the projection means comprises light emitting diodes or any other form of projection means.
3. A mobile telephone as claimed in claim 1 and 2 in which the projection means can project coloured images.
10
4. A mobile telephone as claimed in claims 1 to 3 in which the projection means can project images and/or text as would be viewed on a computer screen or mobile telephone display.
15
5. A mobile telephone as claimed in any one of claims 1 to 4 in which there is a screen onto which images and/or text can be projected by the projection means
6. A mobile telephone as claimed in claim 5 in which the screen can be folded and stored within the mobile telephone.
20
7. A mobile telephone as claimed in claim 5 in which the screen can be folded and stored alongside the mobile telephone.
8. A mobile telephone as claimed in any one of claims 1 to 7 which can project images and/or text onto a surface.
25
9. A mobile telephone as hereinbefore described with reference to the drawings.